

performing a nitriding treatment on the formed member so that an average hardness in the sheet thickness direction of the resultant steel sheet member is Hv 300 or more by Vickers hardness; and

wherein only a specific region of the formed member is strengthened by the nitriding treatment, and when the formed member deforms by bending, the formed member deforms at a boundary between the specific region and an unspecific region as an origin.

15. (Previously Added) The method for producing a formed member made of a steel sheet according to claim 14, wherein the steel sheet material contains as the nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al).

16. (Previously Added) The method for producing a formed member made of a steel sheet according to claim 14, wherein the difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member is Hv 200 or less by Vickers hardness.

17. (Previously Added) The method for producing a formed member made of a steel sheet according to claim 14, wherein before the nitriding treatment, a masking treatment is performed on a part other than the specific region of the formed member.

18. (Previously Added) The method for producing a formed member made of a steel sheet according to claim 14, wherein the nitriding treatment is performed while only the specific region of the formed member is immersed in a salt bath.

19. (Currently Amended) A method for producing a formed member made of a steel sheet for a vehicle body comprising the steps of:

preparing a steel sheet material having tensile strength of 500 MPa or less and containing a nitriding element;

wherein the steel sheet material contains as the nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al);

forming a formed member for a vehicle body having a predetermined shape by performing a plastic forming on the steel sheet material; and

performing a nitriding treatment on the formed member so that an average hardness in the sheet thickness direction of the resultant steel sheet member is Hv 300 or more by Vickers hardness;

wherein the difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member is Hv 200 or less by Vickers hardness, and only a specific region of the formed member for a vehicle body is strengthened by the nitriding treatment.

20. (Currently Amended) The method for producing a formed member made of a steel sheet for a vehicle body comprising the steps of: ~~according to claim 19, wherein forming the formed member having a predetermined shape is performed by a method comprising the steps of:~~

preparing a first blank material and a second blank material having different elongation properties, wherein the difference in elongation property between them is set within a predetermined range;

wherein the second blank material is made of a steel sheet material having tensile strength of 500 MPa or less and contains as the nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al);

forming a preform by joining those blank materials; ~~and~~

performing a plastic forming on the preform to obtain a formed member for vehicle body having of a predetermined shape; and

performing a nitriding treatment on the second blank material of the formed member so that an average hardness in the sheet thickness direction of the resultant steel sheet member is Hv 300 or more by Vickers hardness;

wherein the difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member is Hv 200 or less by Vickers hardness.

21. (Currently Amended) The method for producing a formed member made of a steel sheet for a vehicle body comprising the steps of: according to claim 19, wherein the formed member has a closed section shape and is reinforced by a method comprising the steps of:

preparing a steel sheet material having tensile strength of 500 MPa or less and containing a nitriding element;

wherein the steel sheet material contains as the nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al);

forming a formed member for vehicle body of a predetermined shape having a closed section by performing a plastic forming on the steel sheet material; and

performing a nitriding treatment on a specified region of the formed member so that an average hardness in the sheet thickness direction of the resultant steel sheet member is Hv 300 or more by Vickers hardness;

wherein the difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member Hv 200 or less by Vickers hardness;

setting a foam material by adhesion to at least the specified a region made porous by subjected to the nitriding treatment; and

causing the foam material to expand by heating the formed member, thereby filling the closed section space thereof with expanded foam material and reinforcing the formed member for a vehicle body.

22. (Currently Amended) The method for producing a formed member made of a steel sheet for a vehicle body according to claim 19, wherein forming the formed member having a predetermined shape is performed by a method comprising the steps of:

forming a preform having a pipe-like shape which is relatively approximate to a final shape of the formed member;

wherein the perform is made of a steel material having tensile strength of 500 MPa or less and containing, as a nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al);

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setting the preform in a predetermined mold; and

forming the preform by supplying the closed section space thereof with a pressurized fluid to perform a plastic forming on the preform, thereby obtaining the formed member corresponding to a shape of the mold; and

performing a nitriding treatment on the formed member so that an average hardness in the material thickness direction of the resultant steel member is Hv 300 or more by Vickers hardness;

wherein the difference in hardness between a surface part and an inside center part in the thickness direction of the steel member of the formed member is Hv 200 or less by Vickers hardness, and only a specific region of the formed member for a vehicle body is strengthened by the nitriding treatment.

23. (Currently Amended) A formed member made of a steel sheet for a vehicle body having an average hardness in the sheet thickness direction of Hv 300 or more by Vickers hardness by plastically forming a steel sheet into a predetermined shape and performing a nitriding treatment after the plastic forming;

wherein the steel sheet material has a tensile strength of 500 MPa or less and contains as a nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al); and

wherein a difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member is Hv 200 or less by Vickers hardness; and

wherein only a specific region of the formed member for a vehicle body is strengthened by the nitriding treatment.

24. (Currently Amended) The formed member made of a steel sheet for a vehicle body, ~~according to claim 23,~~ wherein the formed member is formed to a predetermined shape through a plastic forming on a preform obtained by joining a first blank material and a second blank material of which the difference in elongation property between the first blank material and the second blank material is set within a predetermined range.

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wherein the second blank material is made of a steel sheet having tensile strength of 500 MPa or less and contains as the nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al); and wherein second blank material of the formed member is subject to a nitriding treatment so that an average hardness in the sheet thickness direction of the resultant steel sheet member is Hv 300 or more by Vickers hardness;

wherein the difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member is Hv 200 or less by Vickers hardness.

25. (Currently Amended) The formed member made of a steel sheet for a vehicle body having an average hardness in the sheet thickness direction of Hv 300 or more by Vickers hardness by plastically forming a steel sheet into a predetermined shape and performing a nitriding treatment after the plastic forming;

wherein the steel sheet material has a tensile strength of 500 MPa or less and contains as a nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al).

wherein a difference in hardness between a surface part and an inside center part in the thickness direction of the steel sheet member of the formed member is Hv 200 or less by Vickers hardness;

wherein only a specific region of the formed member for a vehicle body is strengthened by the nitriding treatment; and

according to claim 23, wherein the formed member has a closed section shape and at least a part of an internal space of the formed member is filled with foamed material by setting a foam material by adhesion to at least the specified region & made porous by subjected to the nitriding treatment and causing the foam material to expand by heating the formed member, thereby filling the closed section space thereof with expanded foam material and reinforcing the formed member for vehicle body.

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26. (Currently Amended) The formed member made of a steel sheet for a vehicle having an average hardness in the sheet thickness direction of Hv 300 or more by Vickers hardness by plastically forming steel material into a predetermined shape and performing a nitriding treatment after the plastic forming;

wherein the steel material has a tensile strength of 500 MPa or less and contains as a nitriding element, a predetermined amount of at least one element of titanium (Ti), niobium (Nb), boron (B), vanadium (V) and aluminum (Al);

wherein a difference in hardness between a surface part and an inside center part in the thickness direction of the steel member of the formed member is Hv 200 or less by Vickers hardness;

wherein only a specific region of the formed member for a vehicle body is strengthened by the nitriding treatment; and

~~body according to claim 23,~~ wherein the formed member is formed to a predetermined shape by forming a preform having a pipe-like shape which is relatively approximate to a final shape of the formed member, setting the preform in a predetermined mold, and forming the preform by supplying the closed section space thereof with a pressurized fluid to perform a plastic forming on the preform, thereby obtaining the formed member corresponding to a shape of the mold.

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Please add new claims 27 and 28 as follows:

27. (New) The method for producing a formed member made of a steel sheet for a vehicle body according to claim 19, wherein a plurality of strengthened regions are aligned in a specified direction with unstrengthened regions interposed therebetween.

28. (New) A formed member made of a steel sheet for a vehicle body according to claim 23, wherein a plurality of strengthened regions are aligned in a specified direction with unstrengthened regions interposed therebetween.

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